

KUNSAN

“A system of devices or procedures which would make it physically impossible”:

Describe devices for making it physically impossible (rather than allegedly "unthinkable," "against orders") to launch or fire weapons without high-level or presidential authorization: what later came to be known as Permissive Action Links.

I came onto this concept early, via Jack Carne, in investigating the authentication problem. Describe this problem. Jack suggested the analogy of a combination lock (instead of an envelope, which is what I was criticizing). He then suggested that the lock could be used to lock up the weapon from use, unless the proper code were supplied.

(Find and quote my memo to AJW of 1958 on this issue. How did I learn about it that summer? Didn't I need to encounter it in the Pacific, in 1959? Yet I'm sure I wrote the memo in 1958).

--this threw into relief the "administrative" nature of the existing system of control, and the possibility of a different sort of system. The resistance to the latter, a physical system, exposed the true concerns of the military staffers and commanders.

--some of these reflected operational realities, of which civilians tended to be unaware, and of which the military were not eager to educate them. (Complexity, planning time, training, unreliability of communications, vulnerability of command and control).

--others reflected distrust of the will and nerve of civilian leaders, their resolution and steadiness, their desire for centralized control, their ignorance of the above factors and unrealistic belief in their ability to manage events; but also distrust of their willingness to use nuclear weapons, to go first, to believe in or gamble on damage-limiting and preemption, to understand the possibilities of this and its dependence on fast reaction or preemption, the advantages of striking

first; the possibilities of photo-reconnaissance and comint and elint (secret);

--all this pointed to extreme unwillingness (in 1961 and ever since, when the issue arose: see Crimson Tide) to see physical control over the decision to launch.

See the sloppiness over authentication (the envelopes, which I learned as early as 1958: how?) as a basic unconcern with authentication, with who the order originated with.

--Prior issue of vulnerability, discovered by RAND; combined with a preoccupation with first strike (and later, damage-limiting). (But in my own education, I discovered this late, not till...1960? 1961? Then, the first-use part, not till...the Quemoy study of 1964? It came up on Berlin...see my concern for Khrushchev's threats in 1959, in my Lowell Lectures...

A major reason for fearing physical control: fear that the president would take command of this himself, not only jeopardizing survivability (if the president were killed) but, more importantly, slowing preemption if he were alive, foregoing preemption altogether, and preventing first-use. Note their efforts to get predelegation for Laos (vs. the Chinese); or Taiwan Straits?; then the drive for it in the election campaign of 1964. \

The President couldn't have insisted on keeping the combination strictly for himself, given the survival problem; but he could have insisted that it be kept in the hands of civilian authority, along with drastic measures to assure that some civilian authority survived. The devolution problem: Partridge Committee, 1961, and earlier the Gates Panel, both of which I worked on.

Moreover, such an attitude would have gone along with forbidding them from delegating (or distributing combinations to PALS) to lower levels of command, for early first-use. (Note that PALS were long kept off SAC altogether, and are still off SLBMs, despite note at end of Crimson Tide.

See issue of resistance to PALS as: 1) a danger in itself; 2) symptomatic of an attitude,

toward FU, preemption, damage-limiting, early initiation of all these, related to issues of force size and precision (see Discriminate Deterrence); 3) influence of these attitudes on proliferation and imitation of hair-trigger postures in other countries; 4) aside from imitation, the likelihood of comparable attitudes and postures in all other nuclear countries.

The recent form of these dangers and debates is in the context of automated launch-on-warning of missiles; the Russian "Dead Hand" or Doomsday system (unlocking and sending off missiles automatically) (close to Kahn's Doomsday Machine); and proposals for de-alerting. (All these problems arise primarily with alert weapons, though an unauthorized action could utilise an unalert weapon, where the incentive was something other than preemption, e.g. terrorism or catalytic action.

“how is the present system likely to respond?”:

Note some actual false alarms.

On false alarms: the Tower-Hart study for the Senate in 1978 (?) showed some 174 (?) false alarms of strategic attack in an 18-month period, including 3 serious ones.

Other examples of major Soviet false alarms have come out in recent years.

McNamara and Bundy continue to claim that Khrushchev's fear of a US invasion of Cuba in 1962, and his response to this fear, was a false alarm (though, they admit, one with some plausibility), is basically false. He was responding to real preparations and readiness, even if invasion was not a certainty.

However, the "second Tonkin Gulf attack" on the DeSoto patrols in 1964 was a strong example of a false alarm, leading to actual attacks in "response."

Likewise, the US interpretation of antiaircraft and SAM firing during the Cuban Missile Crisis, as inspired and directed by Khrushchev.

Likewise, the US interpretation of NLF attacks on Pleiku and Qui Nhon as tactically directed by Hanoi. (How about: Brinks? Bien Hoa?) And even the first attack on the DeSoto patrol. (Though in all these cases, Hanoi did leave the decision to local forces, without forbidding attacks on the US or, as far as we know, reprimanding them afterwards).

The Manhattan Project, as a "response" to warnings of a German crash program on an atomic bomb.

The US bomber buildup, as a response to the "bomber gap."

The US bomber and missile buildup, as a response to the "missile gap."

The Korean War, so far as the North Korean attack was seen as the precursor to attacks in Europe.

The shootdown of an Airbus by the guided missile cruiser (?) Vincennes, in the Persian Gulf (in the belief that it was a military plane descending in an attack, whereas it was actually ascending).

The shootdown of KAL-007 by a Soviet air defense pilot.

Various false alarms (or potential false alarms, including a missile launch) on both sides during the Cuban Missile Crisis, described by Sagan.

Other examples by Sagan.

“launch on warning”:

I'm not sure to what extent this claim was historically or bureaucratically deserved, but it was generally accepted at RAND. At the very least, he gave a useful explanation of its rationale, one that stimulated my own thinking very much. I can give an account of this rationale, if necessary, in the text, to give something of the nature and quality of RAND thinking of the sort that attracted me and that I participated in, and to give more body to the discussion that follows. Or not.

“even if he were punished for it”:

“or a possible full yield”:

The recent book One-Point Safe, the more or less realistic journalistic account on which the movie is based, describes the current safety standard as "one-point safe," i.e. as requiring only that there will be no significant yield unless more than one section is accidentally detonated. Frank von Hippel tells me that this is correct, in terms of current standards for safe weapons. This would seem to be a lower standard than we were told about in 1960, but current designs might make it adequate. I am certain, from my notes, that the expression given to us and described then was "three-point safe," with anything less than that being regarded as significantly prone to nuclear accidents.

“the disastrous sequence I was projecting”:

There wasn't an easy fix. They could make full-scale rehearsals, taking off from alert pads with bombs aboard, routine, so that an intense false alarm wouldn't create a near-certain conviction that war was underway.

This was what SAC did. And not without risk. Several accidents with planes on airborne alert causing the dropping or jettisoning of nuclear bombs led to high explosive detonations and in some cases the failure of safety mechanisms came close to permitting a nuclear yield. But the risks

of this practice would have been much greater in the tactical forces. SAC weapons were much safer, and they were carried internally.

In the Pacific and elsewhere in the tactical forces, the future, hypothetical danger I was projecting of the dangers of a possible false alarm would have been lowered by drills, but these would have raised the immediate, recurrent danger of an accidental explosion at the base (or from an airborne collision or malfunction). That was not an appealing solution.

Tactical forces with these weapons could have been taken off alert, throughout the world. (That, unquestionably, is what should have been done, for a whole variety of reasons including this one). But that ran against a set of organizational barriers involving interservice and intraservice rivalries for budget and mission, units' sense of importance and elan, and the overall sense of crisis and threat that served and was fueled by these other incentives.

Or some variant of Jack Carne's combination locks, what came to be called Permissive Action Links (PALS), could physically prevent the pilots of these planes from detonating their weapons without a positive order. (PALS were, eventually, installed on planes like these).

11-21-15

If the Doomsday Machine is ever to be dismantled, it would be well to have some understanding of how it came to be constructed and maintained, by Americans. *How could they?* How could Americans ever have done this?

I've worked to understand that for over half a century, and I'm still at it. In this book I'll offer my best accounting for it up to now. But I'll approach that question by addressing it first to myself. *How did I* come in my late twenties to be working on official, secret guidance for nuclear war plans, plans that I knew at the time would kill scores if not hundreds of millions of humans (and in reality, far more than that) if they were ever enacted?

That question is all the more pointed, my participation in this effort especially ironic—to put it politely—considering my own introduction to the horror of bombing and the dangers of the nuclear age, and my initial attitudes toward them.

[Nazi bombing; magnesium bombs. Blitz.

Yet, My father and bomb factories: Willow run, Chicago, Hanford. (B-24s were dropping the same stuff as the Nazis, along with the British; the B-29 was used for firebombing and the A-bomb: tell here, or not? Tell later?))

At Cranbrook, on full scholarship (father's salary):

Mr. Patterson and the U-235 bomb. Hiroshima.

The Accident.

Lesson of both of these.

(1945-46; Shift in my life. Piano; Cranbrook; after hospital, I continue practicing, but...

I leave piano for...unions! My radical brother: YPSL and YCL; Schlesinger (course later; worked for JFK, eventually anti-VN, up to a point; ADA (I got award); economics textbook; the Thirties; Cranbrook; Workers' Wit. Dodge plant...etc.

So why plans against SU? I become a Cold Warrior. (Wallace on election day). USMC

Game theory: von Neumann and Morgenstern (1951), honors thesis. Decision theory.

(TCS: bargaining theory. To RAND.

[to be explained, or noted: I grew up as pianist, then became "labor leader" and radical/Wallace, intellectual: but became cold warrior (1948, (Czechoslovakia?), Berlin, Korea (vs. Harry) Hiss/Chambers (WPB saw me as a Left Chambers). Non-military, but USMC; DBP; Suez (nuc threats in both). (Game theory critic; TCS protégé).

Bargaining theory. (**lectures; Hitler; madness**; (Steinem!) HAK (1970!) (1969:

Options; Duck Hook). Academic intellectual: but "systems analyst" for USAF (attitude of my tutor, Leiserson; Seymour Melman: in 1959). Anti-bombing, anti-terror, anti-nuc: but RAND: deter Pearl Harbor attack (see 10!) (Roberta Wohlstetter). ("SU-preferred surprise attack" rather than "USAF-preferred SU attack": (Both assumed SU wanted to

attack, or to threaten it realistically): actually, SU didn't prefer attacking US at all, didn't prepare for it: though bluff, like Saddam Hussein vs. Iran). (

Later: AFTER description of SIOP 62 and JCS estimate of casualties: How did we come to the DM in 1960?

A.: But before that: "strategic bombing." (Fission bomb plans were simply a transition between firebombing and H-bombs: neither an innovation (morally, strategically) nor the end-point toward the DM.

Via strategic bombing, terror bombing. (First grenade, near Tripoli; reliance on terror bombing by UK in Iraq (Yemen? And also by Egypt); vs. savages (See essay on Tarzan of the Apes; and Linquist);

Panic in London; belief in terror (of civilians, city-dwellers; Germans: but first, Iraqis, Bedouins Nicaragua.

UK vs. ban on bombing; yet, FDR in Sept. 1, 1939;

Feb. 42, workers' housing. Lindemann, Snow. Harris. (Mitchell: Tokyo; Marshall before Pearl harbor) Firebombing.

Hamburg; Dresden (describe). Berlin.

LeMay (after Hansell; Collbohm, Norstad; McNamara; Tokyo; 64 others, down Almanac.

Hiroshima: Myth, that it was a very sober decision, a very reluctant "last resort," lesser evil compared to...invasion, a million casualties. (Plausible to public that saw Okinawa and kamikaze planes, knew nothing of SI/intercepts (**SCI! Basis of Myth of nuclear age, legitimization of Hiroshima! Secret until when? When were our intercepts revealed?!**) showing critical role of Emperor, Soviet entry, readiness of Japanese to

surrender on terms. Fussell, others, ignorant of this; and Oppenheimer, etc. (Knew of A-bomb, not of SI!)

There was no moral issue; no objection on moral grounds (despite Leahy afterwards); fear of USAF that A-bomb would obsolesce air fleets. (need for SU as enemy, for large air force armed with A-bombs, large enough to finance R&D). (Groves: A-bomb for SU always). (Rotblatt).

Then, H-bomb: foreseen from beginning. In minds of Szilard, as well as Teller. (Earlier: Szilard and fission; Fermi/Rabi story: "Nuts." 10%

a.i.: 10%

LeMay: one bomb for Russia. (Cohen: father of usable N-bomb). (My fear) (Dad: up to Z-bombs). LeMay: Can't be too large. Likewise, von Neumann (my man).

Just such leaders in both countries—each presiding over nuclear forces *much smaller then than at present (!)*—came horrifyingly close to possibly launching those forces, something that neither remotely contemplated at the start of the crisis.

Whether or not Hannah Arendt was specifically right in her assessment of Adolf Eichmann, her overall conclusion was correct, and at any rate was supported by the possible course of the Cuban Missile Crisis. Actions of extraordinary evil do not require extraordinary persons to order them or carry them out. Very ordinary humans can suffice for that.

One man did finally back down. That was Khrushchev, but he doesn't get too much credit. I've described the situation he was facing and what he knew. But 24 hours earlier, he and Kennedy were still bargaining and bluffing, prolonging the crisis, hoping for better terms or banking on the other guy's buckling first, while meanwhile events were unraveling beyond their control. I think we need a new definition of courage, which would be that courage to accept humiliation, or defeat, or failure, or being called a coward, or traitor, or whatever, rather than to gamble the world's fate in nuclear war.

Let me give credit to the man who finally did this with this last quote. Khrushchev told Norman Cousins, a few months after the crisis, his reaction at the time:

When I asked the military advisors if they could assure me that holding fast would not result in the death of five hundred million human beings, they looked at me as though I was out of my mind, or what was worse, a traitor. The biggest tragedy, as they saw it, was not that our country might be devastated and everything lost, but that the Chinese or the Albanians might accuse us of appeasement or weakness. So I

said to myself, “To hell with these maniacs. If I can get the United States to assure me that it will not attempt to overthrow the Cuban government, I will remove the missiles.” That is what happened, and now I am reviled by the Chinese and the Albanians. . . . They say I was afraid to stand up to a paper tiger. It is all such nonsense. What good would it have done me in the last hour of my life to know that though our great nation and the United States were in complete ruins, the national honor of the Soviet Union was intact?

It is a quote that deserves to be studied and memorized by all those whose fingers hover over the doomsday machine.

ⁱ Svetlana V. Savranskaya, "New Sources on the Role of Soviet Submarines in the Cuban Missile Crisis," *Journal of Strategic Studies*, 28:2,, pp. 233-259; Peter A. Huchthausen, *October Fury*, Turner Publishing Company. Kindle Edition.

ⁱⁱ Fursenko and Naftali, *Khrushchev's Cold War*, p. 487, citing a BBC Scotland interview with Shumkov.

ⁱⁱⁱ Huchthausen, (p. 210).

^{iv} S.S. quoting Dubivko, 'In the Depth of the Sargasso Sea' (note 32) p.321.

^v Recollections of Vadim Orlov (USSR Submarine B-59), "We Will Sink Them All, But We Will Not Disgrace Our Navy," Source: Alexander Mozgovoi, *The Cuban Samba of the Quartet of Foxtrots: Soviet Submarines in the Caribbean Crisis of 1962* (Moscow, Military Parade, 2002). Translated by Svetlana Savranskaya, National Security Archive. In National Security Archive Briefing Book 399, "The Underwater Cuban Missile Crisis: Soviet Submarines and the Risk of Nuclear War," October 24, 2012, edited by Thomas Blanton, William Burr and Svetlana Savranskaya. <http://nsarchive.gwu.edu/NSAEBB/NSAEBB399/>

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^{vii} Title of the PBS documentary in 2012, quoting Thomas Blanton of the National Security Archive. The film ends with Arkhipova's statement of pride.